Before the
Federal Communications Commission
Washington, D.C. 20054

In the Matter of	)	
	)	
TerreStar Corporation Request for Temporary	)	WT Docket No. 16-290
Waiver of Substantial Service Requirements for	)	
1.4 GHz Licenses	)	

PETITION FOR RECONSIDERATION OF TERRESTAR CORPORATION

Douglas I. Brandon
Secretary and Counsel
TerreStar Corporation
344 Maple Avenue, Suite 275
Vienna, Virginia 22180

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EXECUTIVE SUMMARY

TerreStar Corporation respectfully seeks reconsideration of the *Order* of the Chief of the Mobility Division of the Wireless Telecommunications Bureau released on October 10, 2017, which denied TerreStar's request for a waiver of its buildout requirements. The record demonstrated that TerreStar's failure to meet the construction deadline was due to circumstances beyond TerreStar's control, and that grant of the waiver request serves the public interest.

TerreStar has been actively working to provide commercial service in the 1.4 GHz band since it acquired the majority of its licenses in 2008. By 2013, TerreStar was fully on track to meet its April 2017 buildout deadline, and its planned smart grid network was in full compliance with the Part 27 service rules. However, at the same time TerreStar was building out its smart grid ecosystem, new WMTS equipment that used sensitive receivers with wide passband filters was deployed in the adjacent band. The sensitivity of these receivers—built, certified, and deployed during and after 2011—was not known, and could not have been predicted, by TerreStar. These vulnerable WMTS systems are now permanently deployed and used for life-critical patient monitoring at thousands of hospitals across the United States.

Following the early-2014 discovery of the potential for interference to WMTS systems, TerreStar abandoned all conventional smart grid operations, determining that commercial wireless medical telemetry was the only realistic deployment plan that would protect WMTS systems. TerreStar, in partnership with the WMTS industry, then began actively preparing for its WMTS deployment. TerreStar worked with the WMTS community and the FCC staff throughout this process of discovery and adaptation to the new WMTS vulnerability.

TerreStar demonstrated that it qualifies for a waiver or extension of its buildout deadlines under the Commission's rules. Specifically, TerreStar was prevented from meeting the

construction deadline due to unforeseeable circumstances that were beyond its control. The WMTS interference concerns identified by the Commission when it developed its service rules for the 1.4 GHz band in 2002 are distinct from and independent of the interference concerns discovered by TerreStar in 2014. The FCC's authorization of sensitive WMTS operations in the 1.4 GHz spectrum and the mass deployment of these life-saving devices were also outside of TerreStar's control. Further, unique factual circumstances make application of the buildout obligations inequitable – the Bureau must recognize that it is unique for two fully compliant services to cause harmful interference, particularly when one service is critical to safety of life.

TerreStar has also demonstrated a number of reasons why grant of its waiver would serve the public interest: it would protect existing and future WMTS operations in the adjacent band from potential interference; it would lead to expanded use of the 1.4 GHz band for WMTS, which would generate public interest benefits far greater than those from any other presently feasible use of this band; it would relieve congestion and increase the amount of medical telemetry spectrum at hospitals; the additional channel capacity would be critical to increasing the number of monitored patients and the types of patient metrics that may be monitored; it would result in the use of licensed medical telemetry service outside of major healthcare facilities for the first time; and it would further cybersecurity efforts at medical institutions.

Finally, the *Order* fails to distinguish TerreStar's circumstances from other analogous, and in some cases less compelling, circumstances in which a waiver was granted, making the decision arbitrary and capricious. The *Order* also rests on several faulty factual premises that are unsupported by evidence. The Bureau conflates interference issues identified in 2002 with the interference issues associated with the deployment of new WMTS equipment; concludes that TerreStar's "inactivity" and "lack of progress" support denial of the waiver request; and bases its

decision on a lack of evidence of a spectrum shortage for WMTS, even though the record is replete with unrefuted evidence to the contrary.

For the above reasons, as further described in the following pleading, the Bureau should reconsider its decision in the *Order* and grant TerreStar's request for an extension of the substantial service deadline for its commercial wireless licenses in the 1.4 GHz band, or, alternatively, a waiver of the buildout rules.

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TerreStar Corporation Request for Temporary Waiver of Substantial Service Requirements for 1.4 GHz Licenses	)	WT Docket No. 16-290

PETITION FOR RECONSIDERATION OF TERRESTAR CORPORATION

Pursuant to Section 1.106 of the Federal Communication Commission's ("FCC's" or "Commission's") rules,[1] TerreStar Corporation ("TerreStar") respectfully seeks reconsideration of the Order of the Chief of the Mobility Division of the Wireless Telecommunications Bureau ("WTB" or "Bureau") released on October 10, 2017 in the above-captioned proceeding (the "*Order*").[2] That decision wrongfully denied the Request for Temporary Waiver of Substantial Service Requirements filed by TerreStar regarding its licenses in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz band (collectively, the "1.4 GHz band").[3] For the reasons described below, the Bureau should reconsider its decision in the *Order* and grant TerreStar's request for an extension of the substantial service deadline for its commercial wireless licenses in the 1.4 GHz band, or, alternatively, a waiver of the buildout rules.

I. INTRODUCTION AND SUMMARY

In the *Order*, the Bureau incorrectly found that grant of TerreStar's Waiver does not satisfy the requirements of the Commission's rules.[4] Specifically, neither the Commission's rules, policy, nor precedent support the decision of the Bureau, which has failed to consider or give weight to the

[1] 47 C.F.R. § 1.106.
[2] *TerreStar Corporation Request for Temporary Waiver of Substantial Service Requirements for 1.4 GHz Licenses*, Order, DA 17-995 (rel. Oct. 10, 2017) ("*Order*").
[3] TerreStar Corporation Request for Temporary Waiver of Substantial Service Requirements, FCC ULS File Nos. 0007375830-0007375893 (filed Aug. 12, 2016) ("TerreStar Waiver").
[4] 47 C.F.R. §§ 1.946(e), 1.925(b) & 1.3.

record evidence. That record conclusively demonstrated that failure to meet the construction deadline was due to circumstances beyond TerreStar's control.[5] Furthermore, grant of the waiver request serves the public interest in light of the unique benefits and vulnerabilities of wireless medical telemetry services that make application of the buildout requirements inequitable.[6]

TerreStar was prevented from completing buildout of its technically compliant smart grid network due to the emergence of an interference threat beyond its control and outside of its ability to foresee, discover, or remedy. Specifically, the parallel ubiquitous deployment beginning in 2011 of sensitive Wireless Medical Telemetry Service ("WMTS") receivers created a life-critical medical service on immediately-adjacent frequencies that complies with the FCC's rules but would be susceptible to destructive interference by the fundamental emissions of TerreStar's planned 1.4 GHz operations. After substantial study, it was agreed by WMTS manufacturers and TerreStar, and never questioned by the FCC, that TerreStar's smart grid operations would be a significant source of destructive interference to WMTS systems that monitor patients in thousands of hospitals nationwide. In response to these demonstrated concerns, TerreStar suspended smart grid deployment – in the public interest – and pursued a commercial medical telemetry service with its 1.4 GHz band. The record is clear that but for the mass deployment of sensitive WMTS devices, TerreStar had taken the necessary steps and made the necessary investments to fulfill its buildout obligations.

TerreStar also has demonstrated a number of independent reasons why grant of its waiver would serve the public interest. First and foremost, protecting existing and future WMTS operations in the adjacent band from potential interference significantly benefits the public, which would not be achieved under the FCC's existing rules. Moreover, the use of the expanded 1.4 GHz

[5] 47 C.F.R. § 1.946(e).
[6] 47 C.F.R. § 1.925(b).

band for WMTS would generate public interest benefits far greater than those from any other presently feasible use of this band.[7] Indeed, as a condition to grant of the waiver, TerreStar had agreed to provide expedited service in the expanded 1.4 GHz WMTS band at 2,000 major hospitals by April 2020.[8] The *Order* also contradicts the FCC's publicly stated objective of "addressing spectrum needs for the development of next-generation health technologies and medical devices, and of exercising flexibility, as necessary and appropriate, in revising its rules and policies to speed up their deployment."[9] In light of the many medical facilities who are operating currently at or near WMTS capacity,[10] use of the expanded 1.4 GHz WMTS band would relieve congestion and increase the amount of medical telemetry spectrum at hospitals in the 1.4 GHz WMTS band by approximately 67 percent, equating to a 75 percent increase in effective channel capacity.[11] This would create enormous public interest benefits, since WMTS "enables healthcare providers to

[7] Numerous parties support grant of the waiver for these reasons. In particular, grant of the waiver has garnered significant support from GE Healthcare, Philips Healthcare, and Steward Health Care, all of which have said that the grant would allow growth of WMTS and, as a result, improved patient care. *See, e.g.*, Reply Comments of Philips Healthcare, WT Docket No. 16-290 (filed Oct. 14, 2016) ("Philips Replies"); Comments of GE Healthcare, WT Docket No. 16-290 (filed Oct. 4, 2016) ("GE Comments"); Letter from John Polanowicz, EBP, Hospital Services Group, Steward Health Care, to Ajit Pai, Chairman, FCC, WT Docket No. 16-290 (filed July 13, 2017) ("Steward Ex Parte"); Letter from Timothy J. Cooney & Patrick R. Halley, Counsel to the American Society for Healthcare Engineering of the American Hospital Association ("ASHE"), to Ajit Pai, Chairman, FCC, WT Docket No. 16-290, at 1 (filed July 14, 2017) ("ASHE Ex Parte"); Comments of ASHE, GN Docket No. 16-46 (filed May 24, 2017) ("ASHE Broadband Health Comments"); Comments of GE Healthcare, GN Docket No. 16-46, at 2 (filed May 24, 2017) ("GE Broadband Health Comments").

[8] *See* Supplemental Comments of TerreStar, WT Docket No. 16-290, at 13-14 (filed June 7, 2017) ("Supplemental Comments of TerreStar"); *see also* June 2017 Ex Parte at 8, Attach. at 10.

[9] *FCC Seeks Comment and Data on Actions to Accelerate Adoption and Accessibility of Broadband-Enabled Health Care Solutions and Advanced Technologies*, Public Notice, 32 FCC Rcd 3660, 3672-73 (2017) ("Health Care PN").

[10] *See, e.g.*, Steward Ex Parte at 1-2; *see also* Letter from Matt Pekarske and Neal Seidl, GE Healthcare, to Chairman Ajit Pai, FCC, WT Docket No. 16-190, at 2 (filed Aug. 4, 2017) ("GE Healthcare Letter") (stating "the nation's hospitals need additional wireless medical telemetry capacity").

[11] TerreStar Waiver at 1. TerreStar would add 5 MHz to the existing 7.5 MHz and three channels to the existing four.

recognize patterns that otherwise might go unnoticed and to respond more rapidly to changes in their patients' conditions."[12]

Furthermore, the additional channel capacity provided by TerreStar's 1.4 GHz band is critical to increasing the number of monitored patients and the types of patient metrics that may be monitored. The record reflects that WMTS systems help lower healthcare costs,[13] and give patients more mobility, which has been shown to improve patient outcomes.[14] According to the American Society for Healthcare Engineering of the American Hospital Association ("ASHE"), the odds of surviving an in-hospital cardiac arrest are twice as high for monitored patients.[15] In addition, use of TerreStar's spectrum by WMTS would further permit use of licensed medical telemetry service outside of major healthcare facilities for the first time, which would meaningfully benefit underserved rural and tribal communities.[16] Such communities without major hospitals have no access to WMTS,[17] but would have access to TerreStar's commercial medical telemetry spectrum at smaller facilities, telemedicine sites, and remote clinics.

Grant of TerreStar's waiver request also benefits the public interest by furthering cybersecurity efforts at medical institutions. New cybersecurity mandates calling for encryption of patient data in WMTS have created an immediate need for additional WMTS spectrum in order to expand channel capacity in Federal hospitals (*e.g.*, Veterans Health Administration medical centers,

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[12] Philips Replies at 2.
[13] *Id*.
[14] Steward Ex Parte at 1.
[15] ASHE Ex Parte at 1 (citing William J. Brady et al., *In-hospital cardiac arrest: Impact of monitoring and witnessed event on patient survival and neurologic status at hospital discharge* (Mar. 2011)).
[16] Letter from Regina M. Keeney, Counsel to TerreStar Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 16-290, at 7 n.20 (filed June 14, 2017) ("June 2017 Ex Parte").
[17] 47 C.F.R. § 95.2333 (restricting the deployment of WMTS to major healthcare facilities).

military hospitals, and Indian Health Service hospitals).[18] Without additional capacity, the monitored patient population and the types of patient data that can be monitored will be severely limited in order to comply with these mandates. The TerreStar medical telemetry application would put commercial 1.4 GHz spectrum immediately to work, since existing WMTS equipment can already tune into the adjacent commercial band.[19] Hospitals and the WMTS vendors that service them support the waiver as a path to rapidly expand the capacity and functionality of WMTS networks, while securing Federal hospitals from loss in patient-monitoring capabilities.

The Bureau's decision will have profoundly negative clinical consequences, substantially delay constructive use of the band, and create significant uncertainty about future protection of 1.4 GHz WMTS operations from interference. If the Bureau declines to reverse its decision in the *Order*, the Commission will have no choice but to revise the technical service rules for the 1.4 GHz band to account for the WMTS interference (which all parties now agree would occur under the existing rules) and then presumably years from now hold an auction for the 1.4 GHz band, and then wait until a new set of build out requirements kick in before the FCC and the public will see productive uses of this band. Concurrently, the Commission will be called upon to initiate a new rulemaking in order to satisfy the booming need for more WMTS spectrum, causing significant delays and perhaps never accomplishing the same goals that are readily achieved by a grant of

[18] *See* Letter from Regina M. Keeney, Counsel to TerreStar Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 16-290, at 10 n.23 (filed Sept. 20, 2017) ("September 2017 Ex Parte") (describing the Department of Commerce, Federal Information Processing Standards Publication, *Security Requirements for Cryptographic Modules* (May 25, 2001) ("FIPS 140-2")).
[19] GE Healthcare Letter at 2 (explaining that TerreStar's 1.4 GHz spectrum is "well situated" because is adjacent to two bands already used for WMTS operations).

TerreStar's waiver. These actions will take years, contrary to the underlying purpose of spectrum policy to "ensur[e] efficient use of the spectrum, and *expeditious service to the public*."[20]

II. BACKGROUND

A. TerreStar's Early Investment, Planning, and Deployment.

TerreStar first acquired a portion of its 1.4 GHz licenses in 2007, and acquired the majority and remainder of its sixty-four 1.4 GHz licenses in 2008.[21] At that time, it immediately began to explore use of that newly-acquired spectrum for innovative wireless applications. Federal incumbents cleared the band in 2009.[22]

From 2009 to 2013, TerreStar completed the development and certification of an extensive smart grid ecosystem including hardware from Airspan and Cisco Systems.[23] TerreStar and its first lessee, One Dot Four Corp., also worked to set standards for new smart grid networks.[24] In May 2012, TerreStar entered into a spectrum lease arrangement with FirstEnergy Service Company ("FirstEnergy"), a large electrical utility, which initiated the rollout of FirstEnergy's Smart Grid Modernization Initiative project.[25] The lease agreement permitted FirstEnergy to test high-power 802.16 WiMAX facilities in several locations. In March 2013, the 802.16 Air Interface Standard for High Reliability Networks was released, codifying TerreStar's work on WiGRID, the optimized profile for utility smart grid applications. Following completion of its ecosystem, development of the WiGRID standard, and successful completion of initial deployments, the market demand for the

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[20] *Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, 17 FCC Rcd 9980, 10011 ¶ 73 (2002) (emphasis added) ("1.4 GHz R&O").

[21] TerreStar Waiver at 3.

[22] September 2017 Ex Parte, Attach. at 2.

[23] TerreStar Waiver at 7 (explaining the use of Airspan and Cisco hardware in its TDD WiMAX Device and Infrastructure ecosystem).

[24] *Id*. at 5-6.

[25] TerreStar Waiver at 6; Supplemental Comments of TerreStar at 15-16.

smart grid service offering appeared to be robust. By late 2013, TerreStar was fully on track to meet its April 2017 buildout deadline, and its planned network was in full compliance with the Part 27 service rules.[26]

B. The Evolution of WMTS.

While TerreStar was building out the smart grid ecosystem described above, WMTS devices in the 1.4 GHz spectrum evolved substantially.[27] The previous devices in the band were very few in number and the post-2011 equipment was a problem from both a broadband filter and general proliferation perspective. This new WMTS equipment, with transmitters first certified by the FCC in 2011, used sensitive receivers with wide passband filters necessary to work across the WMTS frequency range of 1395 to 1432 MHz.[28] This resulted in WMTS receivers being susceptible to "desense" from fundamental emissions in the adjacent band.[29] On the plus side, the use of very low power WMTS transmitters allowed for extended battery life of the patient-worn device and higher frequency reuse factors, but the resulting weak signal worsened the "desense" situation.

Importantly, the sensitivity of these receivers, built and deployed during or after 2011, was not known, and could not have been predicted, when the FCC first wrote the service rules for the 1.4 GHz band in 2002, when it auctioned the 1.4 GHz spectrum in FCC Auction 69 in 2007, or when TerreStar acquired the majority of its spectrum in 2008. Nor did WMTS device manufacturers have any duty to notify anyone of their product specifications. However, decisions about receiver design resulted in the development of WMTS in a way that could not co-exist with

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[26] TerreStar Waiver at 6; Supplemental Comments of TerreStar at 15.

[27] Supplemental Comments of TerreStar at 16-17; June 2017 Ex Parte at 4.

[28] *See* 47 C.F.R. §§ 95.2301 *et seq*.

[29] *See, e.g.*, September 2017 Ex Parte at 6 n.15 (stating that Philips Healthcare's Standard IntelliVue Access Point is the 1.4 GHz wireless medical telemetry equipment that has been deployed in most U.S. health care facilities; the initial version of this equipment was certified by the Commission on June 20, 2011).

TerreStar's planned commercial smart grid 1.4 GHz systems.[30] These vulnerable WMTS systems are now permanently deployed and used for life-critical patient monitoring at thousands of hospitals across the country.

C. Two Plans Collide and TerreStar Is Forced To Halt Its Plans.

Beginning in February 2014, at the FCC's suggestion, TerreStar met with WMTS representatives, including Philips Healthcare, GE Healthcare, Comsearch, and ASHE, to discuss possible changes to its high-power 802.16 WiMAX network for smart grid applications.[31] Through those meetings, for the first time, TerreStar (and subsequently the FCC staff) learned that its Part 27 compliant smart grid operations were likely to cause substantial interference to WMTS operations in the band, and as a result, seriously threaten patient safety.[32]

TerreStar learned from the WMTS vendors that further smart grid deployment would represent a significant interference hazard to WMTS systems.[33] Philips Healthcare underscored these potential consequences in the record: "such systems would present a significant danger to already-deployed WMTS systems throughout the country."[34]

TerreStar subsequently conducted laboratory and field tests to confirm that its smart grid operations would have a deleterious impact on current and future WMTS operations, and began to explore alternatives. From early 2014 onwards, TerreStar aggressively began to explore numerous

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[30] Supplemental Comments of TerreStar at 17-19.

[31] TerreStar Waiver at 6; Supplemental Comments of TerreStar at 16-17; June 2017 Ex Parte at 3.

[32] Supplemental Comments of TerreStar at 16. At that time, TerreStar's technical consultant, Jarvinian Advisors, began discussions with representatives from the WMTS industry, including engineers from equipment vendors Philips Healthcare and GE Healthcare and officials from ASHE.

[33] TerreStar Waiver at 7; September 2017 Ex Parte at 4; Supplemental Comments of TerreStar at 16-17 n. 32.

[34] Letter from Delroy Smith, Principal Scientist, R&D Project Leader, Philips Healthcare, to Ajit Pai, Chairman, FCC, WT Docket No. 16-290, at 1 (filed Aug. 22, 2017) ("August 2017 Philips Letter").

alternatives, including the radical reformation of the band plan into downlink only.[35] However, it became clear that, because neither a receiver filtration solution nor an exclusion zone solution could guarantee protection against out-of-band emissions ("OOBEs") or mobile terminal emissions,[36] there were no practical commercial smart grid applications that could guarantee sufficient interference protection to life-critical WMTS systems.[37] As a result, smart grid deployment was suspended and similar Part 27 compliant uses of the 1.4 GHz band were deemed unsafe.

D. A Win-Win: Commercial Wireless Medical Telemetry at 1.4 GHz.

By the middle of 2015, TerreStar made the difficult decision to abandon all conventional smart grid operations, determining that commercial wireless medical telemetry was the only realistic possibility that would not result in serious harm to WMTS systems.[38] By late 2015, TerreStar was actively preparing for WMTS deployment by meeting and working cooperatively with WMTS vendors and ASHE, and moving forward with initial application development and medical device testing.[39] The FCC staff remained involved with TerreStar's plans and progress.

Wireless medical telemetry interests strongly support the use of commercial spectrum at 1.4 GHz to augment the WMTS resource for two main reasons: this application permanently removes interference threats from other uses of the band viewed as significant hazards to WMTS systems;[40] and this application adds much needed capacity to WMTS systems, which desperately require additional bandwidth not only to monitor more patients, but also to integrate new functions and

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[35] *See* September 2017 Ex Parte at 4 (explaining that beginning in late 2013, TerreStar has been working with FCC staff to address WMTS-related interference issues).
[36] *Id*., Attach. at 7.
[37] *See* June 2017 Ex Parte at 5.
[38] Supplemental Comments of TerreStar at 19.
[39] *Id*. at 20.
[40] *See* GE Healthcare Letter at 1-2; August 2017 Philips Letter at 1; ASHE Broadband Health Comments at 11-13; GE Broadband Health Comments at 1-2.

security features.[41] The necessary WMTS receiver passbands and resulting interference susceptibility of WMTS hardware has an upside – it makes it easily operational in the adjacent commercial band. Thus, existing and future WMTS networks could be rapidly augmented by the adjacent commercial band.[42]

By the end of 2015, TerreStar informed the FCC that it had resolved the safety-of-life interference concerns associated with the 1.4 GHz band by abandoning its planned smart grid operations and putting the structure in place to move forward on a commercial wireless telemetry application. This commercial medical telemetry application appeared to be supported by FCC staff from WTB and the Office of Engineering and Technology, as it would protect vulnerable WMTS networks, while expanding the medical telemetry resource. From late 2015 to mid-2016, TerreStar worked closely with WMTS industry representatives to develop a new commercial WMTS proposal:[43] extending medical telemetry services within health care facilities to the unpaired 1.4 GHz band (1390-1392 MHz) and upper 1.4 GHz A+B Blocks (1432-1435 MHz), and establish new services in the lower 1.4 GHz A+B Blocks (1392-1395 MHz).[44] Furthermore, based on input from the FCC staff and WMTS interests, TerreStar developed a lease and registration system for spectrum access that provides equal access to commercial spectrum without the requirement for health care facilities to alter their procurement practices.[45] TerreStar also developed commercial test beds to ensure the safety and compliance of medical telemetry operations in this band.[46]

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[41] Steward Ex Parte at 2; *see also* GE Healthcare Letter at 2; August 2017 Philips Letter at 2; July 2017 ASHE Ex Parte at 1-2.
[42] *See* GE Healthcare Letter at 2.
[43] Supplemental Comments of TerreStar at 20.
[44] TerreStar Waiver at ii; June 2017 Ex Parte, Attach at 11 (citing ASHE Broadband Health Comments).
[45] June 2017 Ex Parte at 5 n.14.
[46] *Id*.

In July 2016, TerreStar submitted the Waiver. In March 2017, the FCC staff worked with TerreStar to develop additional public interest driven conditions, most notably that the company provide service to 2,000 hospitals by April 2020. TerreStar voluntarily agreed to be bound by these conditions to further expedite the deployment that had been delayed by circumstances beyond its control.[47]

TerreStar and WMTS vendors immediately began planning for aggressive deployment that would meet its commitments. These discussions were hastened by looming medical telemetry capacity shortfalls across the industry, concerns associated with unlicensed interference threats in the 600 MHz band, and the cybersecurity mandates at Federal hospital facilities. Amidst this urgent need, the Bureau rejected TerreStar's waiver.

III. THE BUREAU FAILED TO CONSIDER THE RECORD WHICH WOULD HAVE LED TO THE GRANT OF TERRESTAR'S REQUESTED RELIEF.

Based on a full examination of the record, TerreStar conclusively demonstrated that it qualifies for a waiver or extension of its buildout deadlines under Sections 1.946, 1.925 and 1.3 of the Commission's rules. TerreStar was prevented from meeting the construction deadline due to unforeseeable circumstances that were beyond its control, and in light of the unique factual circumstances that make application of the buildout obligations inequitable, TerreStar demonstrated that grant of the waiver is in the public interest. Had the Bureau fully appreciated the circumstances TerreStar faced, it would have granted the waiver.

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[47] *See* TerreStar Waiver at 26-30; *see also* June 2017 Ex Parte at 8 (the milestones discussed with the Commission included: completion of wireless medical telemetry ecosystem in TerreStar's licensed 1.4 GHz spectrum, through expansion of frequency range of a sufficient number of WMTS devices, by January 2018; completion of safety and efficacy testing for a sufficient number of wireless medical telemetry devices operating in TerreStar's spectrum by April 2018; completion of the equipment certification process for wireless medical telemetry equipment operating in TerreStar's spectrum by October 2018; trial deployment of wireless medical telemetry in TerreStar's spectrum at 50 health care facilities by March 2019; and full-scale deployment of wireless medical telemetry in TerreStar's spectrum at 2,000 health care facilities by April 2020).

A. The Bureau Failed to Recognize That TerreStar's Need For An Extension Of Its Construction Deadline Was Due to Circumstances Beyond Its Control.

Under Section 1.946(e) of its rules, the Commission may grant a licensee an extension of its construction period "if the licensee shows that failure to meet the construction or coverage deadline is due to involuntary loss of site or *other causes beyond its control*."[48] The Bureau concludes in the *Order* that the circumstances at hand were not beyond TerreStar's control because it should have confirmed in advance of acquiring the spectrum that it could meet the performance requirements.[49] Contrary to the Bureau's conclusions,[50] the WMTS interference concerns identified by the Commission when it developed its service rules for the 1.4 GHz band in 2002 are distinct from and independent of the interference concerns discovered by TerreStar in 2014.[51] These 2014 issues not only were beyond TerreStar's control, but could not have been predicted by TerreStar (nor do these concerns appear to have been predictable by the FCC). Had these interference issues been known, TerreStar would have pursued an alternative use for the 1.4 GHz band from the beginning, and the FCC would have crafted different technical rules to address them. The fact that TerreStar was unable to move forward with its initial compliant smart grid plan alone demonstrates that there were circumstances beyond its control – a licensee has a reasonable expectation that it can operate in compliance with the Commission's rules. The FCC's authorization of sensitive WMTS operations in the 1.4 GHz spectrum, and the mass deployment of these life-saving devices, were also outside of TerreStar's control.

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[48] 47 C.F.R. § 1.946(e)(1) (emphasis added).
[49] *Order* ¶¶ 7-8.
[50] *Id.* ¶ 10.
[51] June 2017 Ex Parte, Attach. at 6-7. Furthermore, the interference concerns identified by TerreStar in 2014 could not be remedied by filters or geographic exclusion zones. *Id.*

TerreStar was aware of, and designed its systems to comply with, the FCC's technical rules in 2008; but that ultimately did not protect today's WMTS receivers.[52] The technical rules highlighted by the Bureau in the *Order* related solely to OOBEs or the field strength of OOBEs and are distinguishable from the technical issues discovered by TerreStar in 2014.[53] The 2014 issue was a direct result of the wide passband filtration selected by WMTS device manufacturers after that date, which makes the WMTS receiver susceptible to interference from the fundamental TerreStar 1.4 GHz emission.[54] There was no way for TerreStar to know the interference issues associated with new WMTS systems until its discussions with 1.4 GHz WMTS device manufacturers revealed design details associated with their receivers (which they were under no obligation to reveal to anyone).[55] The development of this WMTS hardware occurred years after the 1.4 GHz auctions and TerreStar's acquisition of 1.4 GHz licenses. Thus, there is no way that the Company could have anticipated or controlled the severe interference susceptibility of life-critical medical equipment in the adjacent WMTS band (and susceptibility to a fundamental emission was never accounted for in the FCC's rules for commercial 1.4 GHz operations).[56] Furthermore, TerreStar cannot address the threat of interference by taking remedial measures on its OOBE levels or the field strength of its OOBEs, since the problem stems from the Company's 1.4 GHz band's fundamental in-band emission.[57]

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[52] *Order* ¶¶ 9-10 (citing 1.4 GHz R&O, 17 FCC Rcd 9980).
[53] *Order* ¶ 10; *see also* 1.4 GHz R&O, 17 FCC Rcd 9980.
[54] June 2017 Ex Parte, Attach. at 6 ("To ensure continuous 24/7 biometric telemetry with practical batteries, 1.4 GHz WMTS systems must use extremely low powers and high sensitivity receivers.").
[55] The receivers are part of equipment that was largely certified and deployed after 2011 and the information on their receiver performance was not in the public domain at that time. The receiver performance data is actually still not in the public domain – the FCC certified the WMTS transmitters, not receivers. September 2017 Ex Parte at 6.
[56] *See generally* 1.4 GHz R&O, 17 FCC Rcd 9980.
[57] Supplemental Comments by TerreStar at 17 & n. 33; September 2017 Ex Parte, Attach. at 7.

TerreStar's buildout plan was entirely appropriate, since both acquisition of its licenses and initial development of its smart grid ecosystem began before the final development and deployment of WMTS hardware that caused the patient safety threat. TerreStar described the technical issue in detail both in filings and meetings with the FCC staff.[58] GE Healthcare and Philips Healthcare both have confirmed the interference problem in numerous filings over the last two years.[59]

The Bureau also asserts in the *Order* that TerreStar should have developed a business plan that took the FCC's rules into consideration.[60] In fact, TerreStar did so. It was the need to go beyond the FCC's rules to protect new WMTS technology that prompted the Company's waiver request. The Bureau cannot reasonably expect a licensee to predict future design decisions by component or system manufacturers who are providing equipment in abutting bands (any more than the FCC should have anticipated and had different rules in the first place for 1.4 GHz). TerreStar had developed a business plan and compliant equipment ecosystem. The technical issues TerreStar experienced arose after the Commission's 2007 auction, the secondary market purchase of this spectrum by TerreStar, and the initial development of TerreStar's application and ecosystem. As underscored above, significant WMTS interference threats were only made clear in early 2014 after consultations with a WMTS vendor.[61] Had this discovery come any later, expanded smart grid system deployment would have represented a significant danger to patient safety. Prompt responsible action by TerreStar in response to WMTS vendor concerns and the suspension of smart

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[58] *See* June 2017 Ex Parte at 4; September 2017 Ex Parte at 3; Supplemental Comments of TerreStar at 16-17; Letter from Regina M. Keeney, Counsel to TerreStar Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 16-290, at 1-2 (filed Nov. 15, 2016); Letter from Regina M. Keeney, Counsel to TerreStar Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 16-290, at 1-2 (filed Aug. 1, 2017).

[59] GE Healthcare Letter at 1-2; *see also* Letter from Delroy Smith, Principal Scientist, R&D Project Leader, Philips Healthcare, to Marlene H. Dortch, Secretary, FCC WT Docket No. 16-290 (filed Oct. 4, 2016) ("Philips Comments").

[60] *Order* ¶¶ 11-12.

[61] *Infra* note 55.

grid deployment in a manner contrary to its economic interests unquestionably averted significant public health risks.

B. The Bureau Erred In Finding That TerreStar Was Not Faced With Unique Or Unusual Circumstances.

Application of the construction deadlines to TerreStar's licenses would frustrate the Commission's goals and be inequitable, providing an independent basis for reconsideration of the *Order*. Pursuant to Section 1.925(b)(3) of its rules, the Commission may waive specific requirements of its rules if it is shown that the purpose of the rule "would not be served or would be frustrated by application to the instant case" or "unique or unusual factual circumstances of the instant case" make application of the rule "inequitable, unduly burdensome or contrary to the public interest."[62]

The Bureau must recognize that it is unique for two fully compliant services to cause harmful interference, particularly when one service is critical to safety of life. The Commission's rules typically prevent these types of harmful interference, but here the rules fail to do so. Had TerreStar moved forward with its initial, FCC-compliant plans, the results would have been potentially catastrophic.

Further, as discussed above, contrary to the Bureau's finding, TerreStar conclusively demonstrated that its initial smart grid plan could not be implemented without causing harmful interference to WMTS.[63] While the intended smart grid application was fully compliant,[64] WMTS interests (and later FCC staff) were alarmed by the potential for both the fundamental emissions and

[62] 47 C.F.R. § 1.925(b)(3)(i)-(ii).

[63] TerreStar Waiver at 6-7; June 2017 Ex Parte at 4; September 2017 Ex Parte at 3; Supplemental Comments of TerreStar at 16-17.

[64] The smart grid application was compliant with the Commission's Part 27 rules, including all technical rules and protective limitations. *See* 47 C.F.R. §§ 27.801-27.807; June 2017 Ex Parte at 3; September 2017 Ex Parte at 6.

the OOBEs from TerreStar's band to severely compromise the safety and efficacy of medical telemetry operations,[65] especially for mobile applications.[66]

The Bureau never questioned whether there were unique or unusual factual circumstances. During numerous meetings with FCC staff since 2014, the serious and unresolvable nature of the interference threat appeared to be taken as self-evident.[67] It was later demonstrated and confirmed by TerreStar and WMTS interests.[68] At no time was the interference challenge in dispute nor did Bureau staff request any supplemental information or demonstration. TerreStar would have provided additional demonstration or information, if requested prior to the release of the *Order*. The Bureau's conclusion that 1.4 GHz protections in Part 27 would remedy the interference problem reflects a basic misunderstanding of the record and described in numerous meetings with FCC staff since 2014.

C. Grant of TerreStar's Waiver Would Serve The Public Interest By Making Much Needed Spectrum Available For WMTS.

In addition to the reasons discussed above, grant of TerreStar's waiver would be in the best interest of the public.[69] Despite the Bureau's assertion that "whether there is a need to devote additional spectrum to WMTS… is an open question" and that "TerreStar has not demonstrated that there currently exists a shortage of WMTS spectrum capacity,"[70] the WMTS community has demonstrated a need for additional resources for many years from both a capacity and interference

[65] *See, e.g.*, GE Healthcare Letter; *see also* Philips Comments.
[66] June 2017 Ex Parte at 4 (stating the problem was "particularly acute in the case of mobile WiMAX device operations, where the emission source can be physically close to the WMTS receiver").
[67] *Infra* notes 31 and 32.
[68] TerreStar Waiver at 6-7; June 2017 Ex Parte, Attach. at 6-7; September 2017 Ex Parte at 6; Supplemental Comments of TerreStar at 16-17.
[69] 47 C.F.R. § 1.925(b)(3); *see also* 47 C.F.R. § 1.3.
[70] *Order* ¶ 16.

immunity perspective.[71] The 600 MHz interference issues and numerous directives to move life-critical devices away from Part 15 spectrum are further overloading the 1.4 GHz WMTS spectrum.[72] And WMTS interests were very clear in the current proceeding regarding the shortage of available spectrum. For example, ASHE has stated that it "understands that some areas with a concentration of health care facilities are experiencing WMTS saturation due to a lack of 1.4 GHz spectrum."[73] Those interests were equally clear in several other Commission proceedings.[74] The need for protection and expansion of WMTS spectrum is a well-demonstrated reality and unrefuted in the record. Even in the early days of 1.4 GHz WMTS deployment, it was clear the WMTS industry did not have enough channel capacity for future demand. As Philips notes, "the need … is even more critical now."[75]

Additional WMTS spectrum is necessary for a number of reasons. Hospitals across the country that use WMTS will require additional spectrum, simply to add more patients.[76] Many hospitals also want to add monitoring of additional metrics to their WMTS systems, which also requires more spectrum.[77] Expanded channel capacity will allow for the real-time monitoring of

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[71] *See* GE Comments at 3-4; Philips Replies at 2; ASHE Broadband Health Comments at 11.

[72] Center for Devices and Radiological Health & Center for Biologics Evaluation and Research, FDA, *Design Considerations and Pre-market Submission Recommendations for Interoperable Medical Devices* (Jan. 26, 2016); *see also* TerreStar Waiver at 11-12.

[73] *See* ASHE Ex Parte at 2.

[74] *See* Health Care PN, 32 FCC Rcd 3660; *see also Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap, and Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, 29 FCC Rcd 12248 (2014) ("600 MHz NPRM").

[75] Philips Comments at 1 (citing *Amendment of Part 90 of the Commission's Rules*, WP Docket No. 07-100).

[76] *Id*. at 1-2.

[77] Steward Ex Parte at 1-2 (stating "these devices will only become more important in the future…[but] we are beginning to see signs of spectrum congestion and interference between these monitoring devices").

many more metrics, which will further enhance quality of care and patient survivability.[78] And Federal hospitals will require more spectrum for compliance with the Federal Information Processing Standard ("FIPS") Publication 140-2, since encryption requires dedicated bandwidth in addition to the bandwidth carrying the patient clinical data.[79] The FDA will be strongly encouraging, and possibly mandating, private hospitals to adopt similar spectrum-consuming encryption.[80] Denial of reconsideration will at best delay such efforts, and at worst, where the mandate is absolute, significantly erode capacity by reducing patient monitoring capability in order to provide the additional bandwidth for encryption, putting patients at unnecessary risk. As highlighted above, the Commission will be called upon to initiate a new rulemaking to make additional spectrum available for WMTS. This delay is unnecessary and conflicts with the Commission's goal of "providing spectrum where medical telemetry equipment can operate without interference."[81] For these reasons, TerreStar has shown "good cause" why grant of the waiver is in the public interest.[82]

D. The Bureau Erred In Finding That TerreStar Could Have But Chose Not To Put Its Spectrum To Intensive Use.

The Bureau asserts in the *Order* that "for much of its license term, TerreStar failed consistently to put its spectrum to intensive use" and that TerreStar chose, for years, to pursue a business strategy that it ultimately came to believe would interfere with adjacent spectrum users.[83] First, there is no legal requirement to "consistently put spectrum to intensive use" and the Bureau

[78] Philips Comments at 1-2 (explaining that the demand for WMTS remote patient monitoring is increasing, and threats of spectrum shortage are becoming critical).
[79] *See* FIPS PUB 140-2.
[80] Center for Devices and Radiological Health et al., FDA, *Radio Frequency Wireless Technology in Medical Devices, Guidance for Industry and Food and Drug Administration Staff* (Aug. 14, 2013).
[81] *Amendment of Parts 2 and 95 of the Commission's Rules to Create a Wireless Medical Telemetry Service*, Report and Order, 15 FCC Rcd 11206, 11211 ¶ 11 (2000).
[82] 47 C.F.R. § 1.3.
[83] *Order* ¶ 8.

cannot invent a new standard here. Second, this assertion is wrong on the facts. TerreStar demonstrated that it developed a robust ecosystem for its 1.4 GHz band, for two separate applications – smart grid and WMTS – and proved the market value of applications using that ecosystem. Although TerreStar was working toward putting its 1.4 GHz band to intensive use, it made the best decision for the public, in consultation with FCC staff, by avoiding the creation of life-threatening interference.[84]

When WMTS issues became apparent in early 2014, TerreStar had more than three years to complete construction, a wholly appropriate amount of time for deployments that would have satisfied substantial service requirements associated with the commercial 1.4 GHz band.[85] TerreStar had already completed a diverse ecosystem, developed a marketplace for its sole-source broadband smart grid capabilities, and begun initial deployment. The Bureau fails to account for the well-known challenges of developing new applications for new spectrum bands. An entirely new ecosystem of components that use the spectrum must first be created. Applications must then be developed, tested, reformed, and then put to general use. "Intensive use" is the final step in the process and cannot reasonably be considered possible throughout the entirety of the initial license period for a new spectrum band, and indeed the Commission's build out rules recognize this reality.

Even much-demanded commercial 4G spectrum resources (*e.g.*, 700 MHz, AWS, etc.) are not used intensively until years after the start of their initial license period, and such systems represent extremely efficient multi-party ecosystem development efforts. For new commercial bands with interim service requirements (where there is expectation of a rapid ecosystem), the

[84] *See* August 2017 Philips Letter at 1.

[85] Under 47 C.F.R. § 27.14(a), TerreStar was required to demonstrate that it provided substantial service in each of its license areas by April 23, 2017.

interim requirement is still near the end of the initial license term.[86] There are few new allocations that have any ability to be used intensively consistently throughout their initial license terms due to the above-described limitations and it is certainly not possible here.

E. The Bureau Erred In Not Finding That Denial Of TerreStar's Request Would Be Inequitable.

TerreStar believed it had spent months successfully negotiating the terms of a waiver grant, only to have the Bureau unfairly change course to the detriment of TerreStar. It would be inequitable for the Bureau to punish TerreStar through the denial of its waiver for its prudent decision not to deploy a smart grid network that would have put patients' safety at risk. The Commission has recognized the significant harm that can result from interference of WMTS. As Chairman Pai previously stated, "WMTS can involve matters of life and death. Harmful interference could have serious and immediate consequences."[87]

It would also be inequitable to deny TerreStar's waiver for the concerns voiced by the Bureau for the first time in the *Order* without giving TerreStar the opportunity to respond to them. TerreStar worked closely with the Bureau on this matter over the prior three years and many of the concerns raised in the *Order* had not been previously raised. For example, during these meetings, the Bureau never requested any additional technical analysis to demonstrate the interference. Had

[86] For example, the final buildout deadline for the 700 MHz spectrum does not occur until 2019. The initial and final buildout deadlines for most AWS-3 licenses occur in 2021 and 2027 respectively, and deadlines for the 600 MHz licenses occur in 2023 and 2029. Furthermore, new commercial spectrum, like AWS, has been given a 12-year initial license term. If 1.4 GHz had the same 12-year initial license term as the infinitely more efficient AWS band, TerreStar would not have required a waiver.

[87] *Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 30 FCC Rcd 9551, 9733 (2015) (Dissenting Statement of Ajit Pai).

the Bureau surfaced its concerns in a timely fashion, TerreStar would have had the opportunity to address them.[88]

IV. THE BUREAU'S *ORDER* IS ARBITRARY AND CAPRICIOUS AND OTHERWISE CONTRARY TO LAW.

The Bureau's decision in the *Order* fails to fully and rationally consider the relevant facts presented by the parties and is arbitrary and capricious. An agency is required by law to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made."[89] The Bureau failed to distinguish TerreStar's circumstances from other circumstances in which a waiver was granted and relied on faulty factual premises to conclude that TerreStar was not entitled to a waiver.

A. The *Order* Fails To Account For Disparate Treatment Of Similarly Situated Parties.

In considering TerreStar's waiver request, the Bureau is obligated to treat TerreStar the same as similarly situated parties or to provide an explanation for disparate treatment.[90] Here, the Bureau failed to articulate sufficient justification for denying TerreStar's Waiver when it recently granted waivers in several analogous, and in some cases less compelling, circumstances.

Less than one year ago, the Bureau granted AT&T's request for waiver of the construction deadline for its 2.3 GHz WCS licenses on the basis of facts far less compelling than TerreStar's.[91] As with AT&T, TerreStar also encountered "unexpected complexities" with its initial smart grid

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[88] *Order* ¶¶ 10-11.

[89] *Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

[90] *Melody Music, Inc. v. FCC*, 345 F.2d 730 (D.C. Cir. 1965); *Petroleum Communications, Inc. v. FCC*, 22 F.3d 1164, 1172-73 (D.C. Cir. 1994); June 2017 Ex Parte at 1-2 (explaining the similarities between AT&T's situation and TerreStar's situation); *see also* September 2017 Ex Parte at 3 n. 7.

[91] *AT&T Mobility Spectrum LLC, BellSouth Mobile Data, Inc., New Cingular Wireless PCS, LLC, and SBC Telecom, Inc., Petition for Limited Waiver of Interim Performance Requirement for 2.3 GHz WCS C and D Block Licenses*, Order, 32 FCC Rcd 708 (WTB 2017) ("AT&T Mobility Decision").

network, as well as "significant technical limitations" surrounding its use of its 1.4 GHz band. Also similar to AT&T, these unexpected difficulties required "close coordination" with adjacent band licensees to come up with a non-interfering solution that would allow the spectrum to be put to use to benefit the public. Included among the "unique factors" facing AT&T were "the greater than anticipated difficulties… [that] have prevented AT&T from deploying this or any other non-interfering solution in a manner that will satisfy performance requirements."[92] TerreStar's facts are in reality far more compelling because of the critical safety of life operations in the adjacent band. The *Order* never mentions the *AT&T Mobility* decision nor even attempts to justify the disparate treatment between AT&T and TerreStar. This failure alone warrants reconsideration of the *Order*.[93]

Similarly, also less than one year ago, the Bureau granted to Progeny LMS, LLC a waiver of its construction deadline for its 900 MHz licenses.[94] In support of its request, Progeny claimed it was "actively and diligently" working to provide support for critical, life-saving E911 services in

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[92] AT&T Mobility Decision, 32 FCC Rcd at 714 ¶ 13.

[93] The Bureau has granted numerous other waivers of its buildout requirements and substantial service obligations since its granting AT&T a waiver in January 2017. *See, e.g., American Samoa Telecommunications Authority Petition for Reconsideration, Request for Waiver, and Request for Extension of Time*, Letter, 32 FCC Rcd 6436 (WTB 2017); *The Alaska Wireless Network, LLC, Request for Waiver of Section 27.14(g)*, Letter, 32 FCC Rcd 4728 (WBT 2017); *Maritime Communications/Land Mobile, LLC, Debtor-In-Possession*, Order, 32 FCC Rcd 3907 (WTB 2017). None of these decisions are mentioned in the *Order*. The Commission also granted a waiver as late as last week. *See AST Telecom, LLC d/b/a Bluesky Request for Waiver of Interim and Final Geographic Construction Benchmarks for Lower 700 MHZ Band A and B Block Licenses WQJQ800 and WQOU674 in American Samoa*, Letter, DA 17-1083 (WTB rel. Nov. 3, 2017).

[94] *Request of Progeny LMS, LLC for Waiver and Limited Extension of Time*, Order, 32 FCC Rcd 122 (WTB 2017) ("Progeny Order"). Progeny filed multiple prior requests for waiver or extension of its buildout deadlines for this spectrum, all of which were granted by the Commission. *See Request of Progeny LMS, LLC for a Three-Year Extension of the Five-Year Construction Requirement for its Multilateration Location and Monitoring Services Economic Area Licenses*, Memorandum Opinion & Order, 21 FCC Rcd 5928 (WTB 2006); *Requests of Progeny LMS, LLC and PCS Partners, L.P. for Waiver of Multilateration Location and Monitoring Service Construction Rules*, Order, 23 FCC Rcd 17250 (WTB 2008); *Request by Progeny LMS, LLC for Waiver of Certain Multilateration Location and Monitoring Service Rules*, Order, 28 FCC Rcd 8555 (2013).

the 900 MHz band, but needed additional time due to "circumstances beyond its control."[95] The Bureau found that grant of Progeny's waiver was in the public interest because Progeny's planned network had the "potential of offering significant public safety benefits" through improved E911 indoor location accuracy.[96] In addition, the Bureau credited Progeny's development of equipment, engagement in initial testing and deployment, and ongoing commitment to address a critical public safety need as justification for further buildout extensions.[97] TerreStar has made at least a strong as showing as Progeny to support its waiver request for an additional three years to build, in contrast to the additional 18 years granted to Progeny beyond its initial buildout deadline. As demonstrated above, TerreStar worked actively to deploy service using its 1.4GHz licenses, ultimately developing two new full ecosystems in an effort to put the spectrum to use, including the deployment of life-critical WMTS. TerreStar has worked collaboratively with the WMTS industry to develop and test equipment to put its spectrum to use in the public interest in a significantly shorter time period than Progeny did. As the Bureau is obligated to treat similarly situated parties similarly, it should reconsider and grant TerreStar's Waiver.[98]

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[95] Progeny Order, 32 FCC Rcd at 132.

[96] *Id.* at 136.

[97] *Id.* at 137. For some of the licenses that were awarded to Progeny in 1999, the FCC granted extensions of buildout requirements until 2023. *Id.* at 135-36.

[98] There are numerous other examples of licensees who have accomplished far less in buildout efforts than TerreStar, and yet the Bureau found sufficient justification to grant a waiver or extension of the buildout deadlines. *See, e.g.*, *T-Mobile License LLC Request for Waiver of Section 27.14(g)(1)*, Letter, 31 FCC Rcd 13379 (WTB 2016) (granting a waiver of T-Mobile's construction requirements for its 700 MHz licenses); *Metropolitan Transportation Authority*, Proposed Order of Modification and Order on Reconsideration, 31 FCC Rcd 1436 (2016) (granting additional time to make a substantial service showing to facilitate spectrum use for public safety purposes); *MariTel, Inc.*, Memorandum Opinion and Order, 22 FCC Rcd 14074 (2007). The Bureau must afford TerreStar the same treatment as these licensees. Furthermore, the Bureau cannot apply the new waiver standard articulated by the Bureau in its June 2017 Buildout Public Notice. *See Wireless Telecommunications Bureau Reminds Wireless Licensees of Construction Obligations*, Public Notice, DA 17-573 (rel. June 12, 2017). As evidence of the Bureau's sudden and impermissible change in policy, one need look no further than the fact that in March 2017, TerreStar was informed

B. The *Order* Rests On Numerous Faulty Factual Premises.

As discussed in more detail above, the *Order* rests on several faulty factual premises that are unsupported by substantial evidence, making the decision arbitrary and capricious.[99] First, the Bureau erroneously conflates interference issues identified in 2002 with the interference issues associated with the deployment of new WMTS equipment more than a decade later.[100] TerreStar's Waiver, however, is based on the latter set of technical problems – namely, the development of WMTS receivers that are incompatible with smart grid deployment – that could not have been foreseen or known until 2014. This fundamental misunderstanding of the interference issue in the record warrants reconsideration of the *Order*.

Second, the Bureau erroneously concludes that TerreStar's "inactivity" and "lack of progress" support denial of the waiver request.[101] Here again, the Bureau ignores the substantial evidence in the record of TerreStar's extensive efforts to put its 1.4 GHz band to work beginning when it first acquired the spectrum in 2008 and, perhaps more erroneously, the valiant efforts TerreStar made beginning in 2014, with the guidance of the FCC staff, when it discovered the potential harm to the medically fragile population from its proposed deployment.[102] During that time, TerreStar has fully developed and tested two robust ecosystems, both compliant with the Commission's rules.

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by FCC staff that it was recommending grant of its waiver request, subject to certain negotiated conditions, which the company quickly agreed to. Three months later, the Bureau issued its June 2017 Buildout Public Notice, and three months after that, the Bureau issued its *Order* denying TerreStar's waiver request.

[99] *FiberTower Spectrum Holdings, LLC v. FCC*, 782 F.3d 692, 700 (D.C. Cir. 2015); *Center for Auto Safety v. the Federal Highway Administration*, 956 F.2d 309, 314 (1992).

[100] *Order* ¶ 12.

[101] *Id*. ¶ 14.

[102] *Infra* Section II.

Third, the Bureau erroneously based its decision in the *Order* on a lack of evidence of a spectrum shortage for WMTS.[103] The record is replete with unrefuted evidence to the contrary. Furthermore, the Commission has been made aware of the shortage of WMTS spectrum in other proceedings.[104] The suggestion by the Bureau that WMTS may have sufficient spectrum to serve its needs – and its reliance on that "fact" to justify a denial of TerreStar's Waiver – warrants reconsideration by the Bureau.

V. CONCLUSION

For the forgoing reasons, the Bureau should reconsider the *Order* and grant TerreStar's request for a thirty-six month extension of the substantial service deadline for its commercial wireless licenses in the 1.4 GHz band, or, alternatively, a waiver of its buildout rules. By doing so, the Commission would support the development of WMTS operations in TerreStar's spectrum and expand medical telemetry capacity where these life-critical systems should be able to operate free of interference.

Respectfully submitted,

/s/ Douglas I. Brandon

Douglas I. Brandon
Secretary and Counsel
TerreStar Corporation
344 Maple Avenue, Suite 275
Vienna, Virginia 22180

November 9, 2017

[103] *Order* ¶ 16.

[104] Health Care PN, 32 FCC Rcd 3660; *see also* 600 MHz NPRM, 29 FCC Rcd 12248.